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BIG GAME

ON

BLM ADMINISTERED

PUBLIC LANDS OF THE UNITED STATES

IN

ARIZONA

United States Department of the Interior
Bureau of Land Management
Office of the State Director
3022 Federal Building
Phoenix 25, Arizona (5-63)

THE FOLLOWING IS OFFERED IN RESPONSE TO INCREASING INQUIRIES ABOUT PAST, PRESENT AND FUTURE ROLES OF THE U. S. BUREAU OF LAND MANAGEMENT IN BIG GAME HABITAT MANAGEMENT IN ARIZONA. THE BLM IS RESPONSIBLE FOR MANAGEMENT OF BIG GAME HABITAT AND OTHER MULTIPLE RESOURCE VALUES ON 14 MILLION ACRES OF PUBLIC DOMAIN IN THE STATE.

INQUIRIES ABOUT WILDLIFE RESEARCH, HUNTING SEASONS, HARVESTS, LICENSE FEES, LAWS AND REGULATIONS, SHOULD BE DIRECTED TO THE ARIZONA GAME AND FISH DEPARTMENT.

BIG GAME ON BLM ADMINISTERED

PUBLIC LANDS OF THE UNITED STATES IN ARIZONA

The number of big game animals using the 12 million acres of public domain within the four Bureau of Land Management Districts and the two million acres outside these Districts in Arizona has increased many times in 20 years. The increase in proportions which appear to be related to certain economic changes, to improved management of land, game and livestock, to the increase in water developments, and to other factors.

CHANGING CONDITIONS

In 1942 there were 34,000 goats and 136,000 sheep grazing within the Districts. By 1961 the number of sheep had dropped to 28,000 and the goat herds had been relegated to history. War-time wool prices, loss of markets for mohair, difficulties in hiring herders and shearers, plus the assignment of fixed-boundary grazing allotments figured in the change. While some of the decrease in grazing by goats and sheep has been off-set by cattle use, much of the direct competition between sheep and goats and big game is gone.

On the arid ranges which make up the public domain administered by BLM, water is highly critical to both livestock and big game. A review of water developments built during 1953-1962--the period of greatest game increases and one in which livestock reductions were negligible--indicates that rancher-installed water developments

could well be a primary cause for the increase. During those ten years, 1,100 stock water developments were built on public ranges in the Districts. Before then there were but 793. The Arizona Game and Fish Department has constructed 180 wildlife water developments on the public domain. The additional water allows game and stock to scatter more, resulting in better management and use of forage. Livestock operators are credited with about 95 percent of the investment in livestock and game water developments on public domain ranges in Arizona today.

Another source of a portion of the increase in big game is in range improvement and management. After passage of the Taylor Grazing Act in 1934, the task of assigning specific geographical areas or grazing allotments to eligible stockmen began. The job has been completed in Arizona and nearly 5,500 miles of fence have been built. Stock grazing is more readily controlled. Responsibility for and interest in range conditions on the individual allotments are greater. Range inventories and surveys are now made on a regular basis.

Damage done during the preceding 60 years of uncontrolled grazing on the open range is still very much in evidence. Of the 14-million-plus usable acres administered by BLM in the State, studies indicate that over four million are declining, less than a million are improving and over nine million reflect no measurable change.

At past rates of accomplishment, reseeding, erosion control, brush control, and other practices have undoubtedly played a small

but important role in wildlife increases. Since it is estimated that, under complete improvement, forage for game and livestock could be 70 percent greater, the results of such work are solid steps forward which will be more evident in the future. Overstocking by either big game or livestock or deferment of rehabilitation work serve not only to postpone this potential, but to create local and periodic downtrends in wildlife populations and hunter success.

COOPERATION

While experience and better understanding of wildlife's needs have shown the futility of attempting to stockpile game, there is a definite place for special game ranges and management areas in specific or critical cases. The Cabeza Prieta and Kofa game ranges, cooperatively administered for desert bighorn sheep by the Bureau of Land Management and the U. S. Fish and Wild life Service, are examples.

Cooperative agreements between stockmen, BLM, and the Arizona Game and Fish Department have not figured dramatically in the big game increase reported here. However, recent three-way agreements with range users have led to transplanting of antelope and other game. Special management areas now being set up under cooperative agreements between BLM and the Game and Fish Department should have a very important place in management of wildlife habitat and other resources. Continued expansion of human population and resulting land-use pressures will add importance to these areas.

HARVEST

Coincident with the increase in game numbers has been the increase in harvest of wildlife. This relationship is not as simple as it may seem at first. Hunting is a tool used by game managers to increase the amounts of harvestable game. Heavily hunted herds on good range are more vigorous and productive than static herds or herds on poor range. The situation is not unlike trying to raise chickens on one single cup of feed each day. One hen can bring off a good hatch of chicks and raise them to fair size. Two hens will each bring off fewer chicks and raise even fewer. Three hens all sharing that single cup of feed will bring off very few chicks, few if any of which will survive. If four hens are forced to share the same amount of feed, production will be almost nil; a non-laying hen which can devote all her time and energy to monopolizing the feed may survive to produce noise, feathers and an illusion of chickens on the farm. If chicks are raised by the single hen we started with, but are not harvested, they face increasing starvation and resulting disease as they and their need for feed grow.

Nature sets out the feed for big game in limited quantity. Adding dry does to those already on the range by failure to harvest cannot benefit the deer herd, the hunter or the condition of the range. Range surveys on these public lands show some game ranges with too many mouths for the food. Harvest of surplus does in such areas can mean more fawn survival and greater sustained harvest. Postponed harvest can mean still fewer deer. Thus, by balancing

deer with their range and helping distribute them to unused ranges, the increased hunting of past years may have been a key factor in, rather than a pure result of, the increase in deer and their availability for harvest.

Estimates of state-wide deer harvests are 9,000 for 1949; 18,000 for 1953; 33,000 for 1958; and 36,000 for 1961. Few estimates for harvests strictly within BLM management districts are available for these years; as emphasis on wildlife management increases, more information of this kind will be available. A 1959 estimate for the Arizona Strip District north of the Colorado River placed the harvest at 189 animals. In 1962, due at least partially to cooperative efforts to induce hunters and to an expanded season, some of the pressure on over-used game ranges in the Strip was relieved by a harvest estimated at 1,500 head. Continued adequate harvests coupled with conservation and range improvement projects now underway could help improve stability and production of deer in much of the Strip.

Development of the Arizona Game and Fish Department's staff and functions is roughly coincident in time with the effective establishment of range management through the old Grazing Service and the present Bureau of Land Management. Both agencies show a growth in their programs which is in a time relationship to big game increases. Coincident, also, has been the national increase in research into wildlife and range management.

BIG GAME INCREASES

That all these factors plus others, such as effective predator control programs by the U.S.Fish and Wildlife Service, have resulted in dramatic increases in the availability of big game is demonstrated by comparison of the 1942 and 1961 big game population estimates. First, however, it is emphasized that these are estimates. It is impossible to make actual head counts of wildlife under natural conditions. Antelope are most accurately estimated. Elk in certain seasons may be less difficult to estimate than javelina, for example. Deer of either species are extremely difficult. The trained and experienced field man who has the benefit of established systems and criteria is best qualified. Casual or short-term observations are normally valueless and often misleading. Trends in wildlife populations are observable over long periods. Such observations considered along with other indicators such as browse utilization, physical condition of animals, reproduction, survival of young, and herd composition are normally more critical to proper game management than mere comparison of figures of population estimates; all such data however are of great significance to range managers and to wildlife managers. There are close and direct relationships between the condition and numbers of big game and the condition of range and vice-versa. These figures, then, are offered as demonstrating a 20-year trend, and not as actual head counts or as final criteria for use in summing up the present status of hooved big game or its habitat on BLM administered lands in Arizona.

ESTIMATES OF BIG GAME MAKING USE OF BLM ADMINISTERED PUBLIC DOMAIN IN ARIZONA. (14,460,077 acres)

	1942	1961
Deer	3,150 *	51,870
Antelope	210 *	1,058
Bighorn	375 *	2,020
Javelina	600 *	16,400
Elk	50 *	310
Grand Total	4,385 *	75,658

*Does not include Section 15 areas since no estimates were made on those lands.

(Detailed breakdowns by individual districts and Section 15 areas of responsibility appear in the back of this report.)

BIG GAME ESTIMATES FOR THE FOUR BLM DISTRICTS IN ARIZONA. (12,432,077 acres.)

	1942	1961
Deer	3,150	18,770
Antelope	210	533
Bighorn	375	1,925
Javelina	600	2,800
Elk	50	35
Sub Totals	4,385	24,063

BIG GAME ESTIMATES FOR BLM ADMINISTERED AREAS OUTSIDE THE ORGANIZED GRAZING DISTRICTS IN ARIZONA. (With the exception of Indian ceded lands south of the San Carlos Indian Reservation, these are, for the most part, scattered tracts where estimates are more difficult and where use by big game is more transient. No 1942 estimates are available for these 2,028,000 acres):

	1961
Deer	33,100
Antelope	525
Bighorn	95
Javelina	13,600
Elk	275
Sub Totals	47,595

RANGE CAPACITY

The drop in use of grazing district lands by domestic sheep and goats is of interest for two reasons. First, competition between these animals, deer and bighorn sheep is quite direct, usually more so than competition between cattle and big game. Secondly, the condition of ranges should be enhanced to that degree that use by big game remains below what the use would have been had there been no decrease in use by sheep and goats.

Since different kinds of grazing animals require different amounts of forage, the AUM or Animal Unit Month has been developed and generally accepted as the common denominator for measuring forage needs. An AUM is equivalent to the forage needed to sustain one cow for one month, or five sheep for a month, or five deer for one month. The animal unit months of use on BLM grazing district ranges by domestic stock was 813,383 in 1942 and 608,810 in 1961, a drop of 204,573 AUM's. In the same period, the AUM's of use by big game increased from an estimated 16,660 to 70,444, leaving what may at first appear as a credit of about 150,000 animal unit months. Since a million acres of range are improving, it would be easy to make a couple of pat assumptions: one, that there are ostensibly more AUM's available for wildlife right now; second, that at the present rate of stocking and harvesting, all our game ranges will automatically improve. If weather could be controlled, if each big game animal could be persuaded to feed only in spots designated by land managers, if the prior use by sheep and goats had been in keeping with range capacity, had the ranges not already suffered from several decades

of uncontrolled use, and if four million acres weren't deteriorating and another nine million showing no measurable change, then such assumptions would be more valid than they appear to be on first examination. The hard fact is that deer herds in some spots are eating and breeding themselves into eventual starvation, damaging the land in the process and postponing the time when ranges could be producing at their maximum cyclic capacity.

A big part of wildlife management investigation is aimed at finding ways of distributing big game to make best use of available forage. Migration and drift studies, food palatability and nutrition studies, salting, drifting, transplanting and habitat manipulation all are receiving attention in various states. But hunting remains the only practical, readily available and effective tool. Widespread reduction in deer hunting and harvesting would mean still smaller harvests available in only a year or two. It would mean that, for several decades, harvests would be smaller than they need have been. It would also mean that a single use had taken precedence over the principle of multiple use and that land managers were failing in their total obligation to secure the greatest good to the greatest number of persons in the long run. Game cannot be stockpiled but land damage can. Thus the reduction of range use by 150,000 AUM's doesn't mean that 30,000 more deer can over-winter or live through a drought. It merely means that a tiny cushion may exist on which game and land managers can attempt to build range conditions and thus perpetuate an upward trend in populations related to the one we are reporting on here. But range improvement and game management must keep a step or two ahead if the trend is to be kept from tripping over itself.

RANGE CONDITIONS

Range conditions are not static. Vagaries of weather and climate and the degree of use have immediate and long range effects; thus repeated checks, studies and inventories are needed. One-fifth of the public range is studied each year so that a complete round is made every five years. The first round has been completed on the public domain in Arizona. A total of 1,815 moderately intensive studies has been made and 308 permanent study stations established. Records of existing conditions on a range, the general trend and forage utilization studies are used to compile an analysis record. This, correlated with weather data, livestock and game populations and other information as mentioned earlier, is used to make plans for a specific range area. Consideration is given to any changes needed in amount of grazing and to need for water developments and fences, reseeding, erosion control, habitat improvement and related work.

RESTORATION

BLM BLM uses a two-pronged attack to restore, conserve and improve the Federal public domain lands. One prong is aimed at getting--and then keeping--full production of high quality livestock and game forage. This is done by developing water, by fencing, brush control, noxious weed control, seeding, pitting, deep tillage, and good range management. The second prong is aimed at erosion. Its purpose is to stop or reduce loss of soil and to restore land damaged by erosion. This is done by building detention dams, dikes, and diversions.

Work done so far on 14 million acres of BLM administered public lands in Arizona includes brush control on 138,000 acres, 5,500 miles of fencing, 69,000 acres of range reseeding, 61 detention dams, 397,000 feet of erosion control and waterspreading dikes, 17 diversion dams, nearly 1½ million feet of stock water pipelines, 1,179 stock water reservoirs or ponds, 330 stock water developments at springs, 380 stock wells, 140 cattleguards and 330 miles of truck and livestock trails. Since 1949 the Arizona Game and Fish Department has constructed 149 rain water catchments, 20 retention dams and potholes, 7 windmills, three springs, and one siphon on the public domain, and plans to continue similar work. These improvements have been built and kept up in one of three ways: (1) entirely by the public through BLM; (2) in cooperation with users; (3) entirely by users including the Arizona Game and Fish Department.

MUTUAL PROGRAMS

The second variation mentioned above has been made more feasible for wildlife purposes through a Program for Cooperative Natural Resource Management entered into in 1963 by BLM and the Arizona Game and Fish Department. This agreement is expected to have considerable effect in the future as joint programs are developed. Text of the general program statement follows:

PROGRAM FOR COOPERATIVE NATURAL RESOURCE MANAGEMENT

The Bureau of Land Management of the United States Department of the Interior and the Arizona Game and Fish Commission, recognizing that growing land use activities present need and opportunity to enhance multiple use resource management through continued cooperative programs, hereby agree:

1. That their common mutual objective on lands administered by the Bureau of Land Management is to maintain optimum numbers of wildlife and to keep them in balance with the needs of other public uses such as livestock grazing, watershed management, mineral leasing, recreation and other uses.

2. To promote coordination of multiple-use management programs, giving special emphasis to those particular areas wherein extra efforts may be needed to achieve the mutual objective; and that no land tenure changes shall be made in such areas without prior notice to the Arizona Game and Fish Department.

3. To give full consideration to authorizing specific cooperative programs and studies necessary in the conservation or enhancement of multiple-use values on the national land reserve.

4. To continue mutual and separate efforts to increase public understanding of the absolute need to balance animal populations with forage resources.

5. That in the event of failure to agree upon proper use or management of an area, the Bureau as the Agency charged with administrative responsibility for the lands involved, must of necessity make the final determination based on all pertinent considerations including those submitted by or on behalf of the Commission.

6. That nothing in this memorandum is construed as binding either party to programs or projects beyond fiscal abilities or regulatory or legal authorizations.

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Several areas to be considered in the cooperative program are under study by the two agencies. The first area to be brought into the program is the Black Hills Cooperative Natural Resource Area in southeastern Arizona covering some 89,000 acres. The area agreements will have several effects. First, wildlife will be recognized as an important established use within the area and will be considered in all land classification procedures. Any applications for change in land status in areas under agreement will be brought to the attention of the Game

and Fish Department just as such applications have been called to the attention of private range users. Joint improvement and study projects to enhance wildlife and multiple use values become possible under the agreement. The program does not contemplate withdrawal of the areas for wildlife. Rather it places emphasis on work and management that will enhance conditions for wildlife along with other uses. On-the-ground projects can include access roads or trails, camp facilities, water developments, habitat and browse improvement, and similar efforts to protect the various resources.

An earlier specific agreement provided for reintroduction of pronghorn in Antelope Valley in the Arizona Strip Grazing District. Thirty-four head were brought in from Anderson Mesa in November 1961. Cooperation of range users in the area and their participation in the agreement made the project feasible, especially so since the available water was developed entirely by private capital.

DESERT BIGHORN RANGES

Another form of cooperation, and one which has had substantial results, involves the survival and partial return of Arizona's desert bighorn sheep herds. Beset by lack of protection against widespread poaching, bighorns continued to decline in numbers from before the turn of the century until recent years. In 1939, when the former Grazing Service was just five years old, an Executive Order established the Kofa and Cabesa Prieta Game Ranges in the southwestern part of the State. There 1½ million acres of bighorn range are administered jointly by the Bureau of Land Management and the U. S. Fish and Wildlife Service.

Hunting, as in all cases, is under jurisdiction of the State Game and Fish Department. More effective law enforcement on these ranges and elsewhere in the State coupled with predator control, water development, research results and other factors have reversed the trend. Here, again, economic changes probably played a role. Increases in available employment and income nearly eliminated a small army of individual placer and lode miners, many of whom eked out part of their existence by poaching bighorn.

While Arizona's bighorn sheep have increased to the point where they can support a small amount of hunting, they are necessarily restricted in numbers and range by the advance of civilization and by the very nature of their range. Because it is dry and rugged and seldom produces extra forage, desert bighorn sheep habitat in Arizona is hardly ever used by livestock. When an occasional chance of conflict does come up it is more likely to involve domestic sheep than cattle. In any case BLM administrators give first consideration to the bighorns' health, to their very selective habitat needs, and to their intolerance for civilization. In 1961 bighorns had increased sufficiently to allow hunting on part of the Kofa Game Range. Mature rams have been hunted in some areas, most of them on Federal public domain, since 1953. Hunting of this kind serves to remove unneeded animals, reduce competition with producing females, and to provide study samples. Such hunting is in keeping with the realization that even in marginal species needing near-maximum protection, there is room--and often need--for controlled cropping.

The increases in bighorn sheep and of other big game on these lands are the results of many interrelated factors. Man may rightfully take credit for part of it, just as he must take credit for some of the earlier reductions. But both increases and decreases are affected by cyclic natural influences, some of them as obvious as drought or severe winter, some of them barely understood and some, perhaps, of which man has not yet even caught a glimpse. Any statement to the effect that a particular known factor is entirely responsible for the status of a certain game population must be questioned. But there are observable results of certain practices such as those we have been discussing. As big game research and investigation continue, we will be better able to comply with nature's requirements and thus come closer to achieving man's own idealistic objectives.

Wildlife management is relatively new as a separate technique. The progress reported here is due largely to the efforts of pioneers in the fields of game and range management and to the efforts of lawmakers and citizen conservationists who worked for and supported research and up-to-date management practices.

Range men in the old U. S. Grazing Service share with other wildlife pioneers the credit for helping stop the plunge in big game populations. That pioneering effort has continued into the present BLM organization where range technicians and administrators do their work with wildlife in mind and are supported by legal requirements that

forage can be reserved for reasonable populations of wildlife and that hunters and others have access to the public ranges. Thus wildlife administration is not new to BLM--but public interest and emphasis are changing. This interest, plus obvious need for intensified land management, is resulting in more emphasis on the wildlife aspects of range management. For example, the BLM in Arizona was able to employ its first specifically-trained wildlife specialist in 1961. He is assigned to the Arizona Strip Management District where there are both acute and chronic problems on deer ranges. Because wildlife habitat management is very closely related to the training and work of BLM range managers, they carry it as one of their several responsibilities. Thus wildlife receives the attention of trained BLM personnel even though personnel rosters do not show wildlife specialists in all Districts. Staff responsibility centers in the Division of Range and Forestry in the State Office in Phoenix where a staff officer has wildlife coordination as a prime responsibility. Each of the four District Grazing Advisory Boards has a wildlife representative. These men are appointed by the BLM State Director from nominations submitted by sportsman organizations and considered by the Game and Fish Department. The appointees in turn choose one of their number to serve on the BLM State Multiple Use Advisory Board.

ECONOMICS

Hunting and fishing are big business in Arizona. In 1960 some 183,000 persons spent over $40,000,000 to hunt and fish in the State.

If one-twentieth of this total amount was spent to hunt on the public lands of the United States--which make up about one-fifth of the State--it more than paid for management and administration of those lands. But aside from intangible or unmeasurable economic values such as this, these lands have traditionally paid their own way. For example, in fiscal year 1961 BLM revenues in Arizona amounted to $1,072,834 while appropriations were $1,033,200.

CURRENT PROGRAMS

Current BLM programs which have bearing on wildlife include the building of conservation structures, publication of the first of a series of visitor information folders and maps, identification of and planning for development of recreation facilities, general planning, management and inventory work, establishment of additional guidelines for wildlife management, the Cooperative Natural Resource Management Area programs, and range improvement work. Past efforts include the spectrum of BLM activities plus some specific recent efforts such as the 22-mile BLM access road in the Hualpai Mountains.

In the spring of 1963 nine structures with various degrees of potential for wildlife were scheduled. These included five sets of diversion dikes in the Arizona Strip, two cooperative stock water dams southeast of Salome, dikes in Yavapai County, and dikes in the Lower Centennial Area. Here, as with range improvement, it is appropriate to state that any work which improves the land also improves conditions for wildlife. This is most graphically pointed out on the Upper Centennial where a soil-saving project has resulted in increased habitat

for quail, waterfowl and deer, and where there is a possibility of establishing a small warm-water fishery. A table near the end of this discussion gives details on the amount of work of this kind on BLM-administered lands in Arizona.

Because of the overpopulations of deer in parts of the Arizona Strip District and the need for better harvests, a map was made available in the fall of 1961. An improved version was used in 1962 and, as a result of hunter interest and requests, a more adequate printed map with accompanying text is being prepared by the District. The text gives suggestions and tips for travel, camping, hunting and sightseeing. It also emphasizes a code of conduct intended to help improve relationships between hunters and livestock operators. It is anticipated that similar information folders will be issued for the other three Districts.

OUTLOOK

As human pressures increase, so must the emphasis on all natural resource values including wildlife. This was pointed out recently in a communication which stated that Agency personnel will operate with full awareness of the need for intensified efforts regarding wildlife habitat management. Agency efforts reflect public interest. Satisfaction of public demands is not achieved by the mere filling of a job opening or the signing of an agreement. It is fulfilled only through continuing long-range efforts supported by an accurately informed public. The sportsman who would see the general up-trend in big game continue has an active

obligation to keep informed on practical means and limits and to pass that information on. With the assistance of informed, cooperating resource users, BLM can achieve multiple use goals being set by various segments of society.

HELP KEEP YOUR VISITS TO THESE LANDS PLEASANT AND REWARDING. FOLLOW THESE TIPS AND RULES OF THE RANGE:

1. Leave gates as you find them. A gate swinging in the wind, lying across a roadway, or only partly open should probably be closed.

2. Camp at least ¼ mile from water holes, ponds and troughs--wildlife and range cattle will suffer thirst if you camp nearer.

3. Don't molest livestock. Range cattle are spooky. Move quietly and slowly; don't give them cause to startle or run.

4. Leave the countryside clean. Throw nothing from your car. Burn and then bury your camp litter or take it to a garbage can.

5. Shoot only at reasonable targets - never at signs, fence posts, improvements, glass, or into timber. Know where your bullet will come to rest.

6. Treat the land and the things on it as you treat your own yard at home.

7. Be careful with your smokes and matches, and

HAVE A GOOD TRIP!

BIG GAME ESTIMATES BY BLM GRAZING DISTRICTS

DISTRICT #1 (Arizona Strip)	1942	1961
Deer	150	5,500
Buffalo	200	---
Bighorn sheep	---	225
Antelope	---	84
TOTALS	350	5,809

DISTRICT #2 (Kingman)	1942	1961
Deer	350	7,060
Antelope	---	400
Bighorn sheep	75	500
Elk	50	35
TOTALS	475	7,995

DISTRICT #3 (Maricopa)	1942	1961
Deer	750	3,300
Antelope	60	25
Bighorn sheep	300	1,200
Javelina	600	800
TOTALS	1,710	5,325

DISTRICT #4 (Safford)	1942	1961
Deer	1,900	2,910
Antelope	150	24
Javelina	---	2,000
TOTALS	2,050	4,934

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BIG GAME ESTIMATES, SECTION 15 LANDS OUTSIDE BLM DISTRICTS
(No 1942 estimates available)

PHOENIX AREA

	1961
Deer	27,000
Antelope	525
Elk	250
Javelina	2,100
Bighorn	95
TOTALS	29,970

SAFFORD AREA

	1961
Deer	6,100
Elk	25
Javelina	11,500
TOTALS	17,625

TOTAL ESTIMATES OF BIG GAME ON ALL BLM ADMINISTERED PUBLIC DOMAIN LANDS IN ARIZONA

	1961
Deer	51,870
Antelope	1,058
Bighorn	2,020
Javelina	16,400
Elk	310
GRAND TOTAL	71,658

DIRECTORY OF ARIZONA BLM OFFICES

State Office
U. S. Bureau of Land Management
3022 Federal Building
Phoenix 25, Arizona

District Offices

Arizona Strip Grazing District
Hafen Building
53 North Main
St. George, Utah

Phoenix District - (Responsible for District 2 (Kingman)
3041 Federal Building and District 3 (Maricopa)
Phoenix 25, Arizona

Safford District
Post Office Building
P. O. Box 786
Safford, Arizona

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ADVISORY BOARD MEMBERS FOR WILDLIFE

Arizona Strip	-	John O. Vaughn, Fredonia
Kingman	-	Jerry Stahl, P. O. Box 215, Kingman
Phoenix	-	Tom Knagge, 5662 E. Alta Vista St., Tucson
Safford	-	*Max T. Layton, 617 Main St., Safford

*Member, State Board

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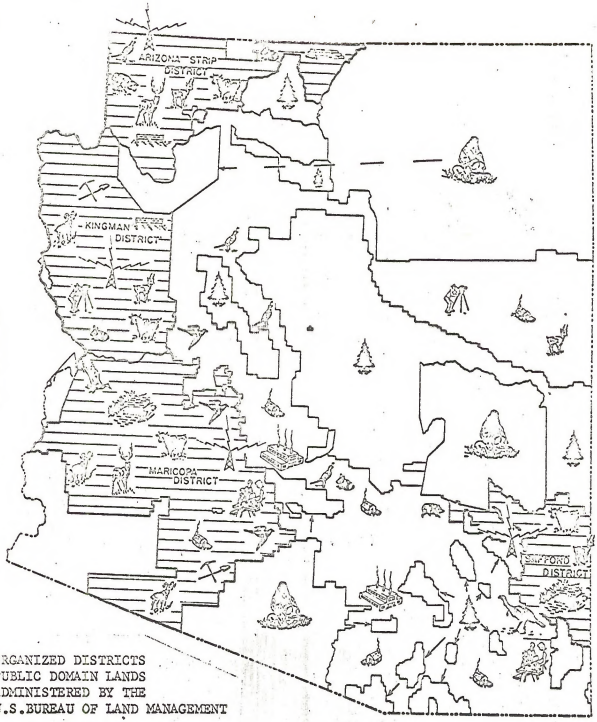
ESTIMATED REPLACEMENT VALUE OF IMPROVEMENTS
INSTALLED BY RANCHERS ON PUBLIC LANDS ADMINISTERED BY
THE U.S. BUREAU OF LAND MANAGEMENT
INCLUDING COOPERATIVE PROJECTS WITH THE BUREAU

June 30, 1962

Improvement Practice	Unit	Installed entirely by ranchers		Installed by BLM with rancher cooperation		
		No. of Units	Estimated Value	No. of Units	Estimated Value	Ranchers share of est. value
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Brush control	acre	2,129	$ 4,250	135,972	$ 271,950	$ 83,300
Deep tillage	"	0	0	814	2,450	0
Fencing	mile	1,905	1,428,750	3,576	2,682,000	1,206,900
Seeding	acre	228	1,150	69,098	345,500	86,350
Detention dams	no.	0	0	61	1,551,850	15,000
Dikes	lin.ft.	28,535	9,450	368,734	245,200	20,000
Diversion dams	no.	2	1,350	15	27,800	2,000
Pipelines	lin.ft.	1,411,514	352,900	60,928	15,250	7,500
Reservoirs	no.	1,064	852,450	115	103,300	51,500
Spring developments	no.	315	157,500	23	11,500	5,800
Water storage facilities	no.	199	97,400	10	2,550	1,250
Wells	no.	330	990,000	50	150,000	62,500
Cattleguards	no.	5	1,500	135	40,500	20,250
Corrals	no.	332	166,000	45	22,500	11,250
Study Plots	no.	0	0	14	2,800	0
Truck Trails	mile	126	31,500	102	25,500	6,500
Stock Trails	"	50	10,000	51	10,200	5,100
Totals	XXX	XXX	$4,104,200	XXX	$5,510,850	$1,585,200

1. Total Estimated Value of All Improvements on BLM Lands = $9,615,050
   a. Amount credited to rancher participation = $5,689,400
   b. Amount credited to BLM participation = $3,925,650



ORGANIZED DISTRICTS
PUBLIC DOMAIN LANDS
ADMINISTERED BY THE
U.S.BUREAU OF LAND MANAGEMENT

MANAGEMENT DISTRICT

INDIAN RESERVATION

NATIONAL FOREST